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ABSTRACT

A study used 18 television commericals, selected as representative of a variety of executional styles and products, and generated scores for each of them on 18 dimensions of structural variation. In addition, a multivariate analysis was used to examine the relations both among the dimensions and between these dimensions and some common measures of viewer response to commercials (recalling, recognizing, and liking). The 18 variables were organized into four classes: (1) those that measured language structure, (2) those that measured the integration of information in commercials, (3) visual measures of package emphasis and the number of scenes, and (4) measures of the presence of affective or emotional stimuli. Findings showed that the stimulus variables did cluster into factors, demonstrating that selection of commercials as exemplars on one stimulus dimension can easily bring about confounding with other dimensions. Five pages of references are included. (HOD)

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Recall, Recognition, and Ad Preference as a Function of 18 Properties of TV Commercials

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Abstract

Because commercials are complex structures that vary along many dimensions, experimental research that uses properties of commercials to define stimulus conditions is likely to suffer from inadvertent confounds. The present approach explores some of the ways in which properties of commercials are interrelated with each other, and with three dependent variables common in advertising research: recall, recognition, and ad preference. Eighteen properties were measured in a sample of commercials and their values correlated and factor analyzed. Multiple regression was used to explore combinations of the attributes that provided the best prediction of the three response variables. The results are discussed in terms of their implications for factorial designs involving properties of commercials, as well as for further understanding of the specific stimulus dimensions examined.

Recall, Recognition, and Preference as a Function of

18 Properties of TV Commercials

Research on the effects of commercial structures often involves a paradigm in which the experimenter selects several properties of commercials and examines how they affect one or more measures of consumer response. For example, studies have asked whether the presence of black models in commercials affects the liking of products or ads by black and white viewers (Reid, Rotfeld, & Wilcox, 1981); how social and objective product information affect viewer response (Miaoski & Settle, 1979); how presence and size of pictures affects responses to advertised products (Rossiter & Percy, 1980), and how brand naming and number of brands in an ad affect memory (Leigh, 1984). These factorial approaches assume that all non-manipulated variations in commercial structure are either held constant or randomly distributed across the stimulus conditions so that the effects of the manipulated variables can be observed. Unfortunately, this assumption may not be warranted, particularly when the stimuli in question (namely commercials) are highly complex. Certainly the last 20 years of advertising research would yield evidence that TV commercials are complex in that they vary along many dimensions (Schlinger, 1979; Acker & Bruzzone, 1981; Wells, Leavitt, & McConville, 1971).

Simultaneous variation on many dimensions means that while an experimenter may assume in a simple factorial design that changes in viewer response result from manipulation of the chosen independent variables, uncontrolled variables correlated with the manipulated variables may instead be producing the effect. For example, if an experimenter were to look at the effects of the type of

appeal used in commercials, say emotional as opposed to non-emotional--and find that memory is better for the former type, it might well be that variables confounded with those types of appeal (e.g., complexity of language, number of scenes, level of product emphasis, or product category) were really producing the changes. Even a cursory examination of emotional vs. non-emotional TV commercials would indicate that such naturally occurring confounding is likely.

Given the probability that inadvertent confounding is a potential problem for researchers studying commercial structure, what solutions are feasible? In general, multivariate approaches seem the obvious avenue, and to a limited extent they have been used, though primarily to try to develop taxonomies of TV commercials (Schlinger, 1979) or to predict recall (Holbrook & Lehman, 1980; Rossiter, 1981).

The approach adopted here, while similar to these studies, relies on an analysis developed by Rubin (1980) to deal with a similar problem in psychology, namely the complexity of dimensions along which words vary. Rubin selected a sample of words, generated scores for each one of them on 51 dimensions (e.g., imagery value, concreteness, meaningfulness), and then used regression and factor analysis to explore how the 51 dimensions were related to each other, and to some common measures of responses to words (e.g., recalling and recognizing them, latency to name them). Rubin recommended that the results of this analysis serve as a guide to which dimensions of word variation are usually confounded with each other and that subsequent research should either experimentally control the dimensions, or refer to "factors" of variation made up of highly correlated dimensions.

To examine the utility of this approach for advertising research and par-

ticularly for TV commercials, the present study used 18 commercials selected to be representative of a variety of executional styles and products; generated scores for each one of them on 18 dimensions of structural variation; and used multivariate analyses to examine the relations among the dimensions and between these dimensions and some common measures of viewer response to commercials (recalling, recognizing, and liking).

Of course TV commercials vary along many more dimensions than the 18 sampled here. So the present study must be regarded as an initial attempt to test the usefulness of the analysis. The choice of 18 stimulus dimensions was limited to variables that past research had demonstrated to be promising. These variables were organized, for the sake of convenience, into four classes: (1) those that measured language structure; (2) those that measured the integration of information in commercials; (3) visual measures of package emphasis and the number of scenes; and (4) measures of the presence of affective or emotional stimuli. Each of these four categories of stimulus characteristics will be examined in detail, and then some general hypotheses about their relations to each other and to recall, recognition, and liking for the commercials will be articulated.

Language Structure Variables

It is commonly assumed by cognitive psychologists (Kintsch, 1974; Klatzky, 1980), advertising practitioners, (Caples, 1977; Wright, Winter, & Ziegler, 1982, p. 269) and by a number of researchers in advertising, (Rossiter, 1981; Leavitt, 1968; Thorson & Snyder, 1984) that the language in which messages are posed will influence responses to the messages. The present study selected measures of language structure that index how densely ideas are packed into what is said, the difficulty of the grammar, and the relative emphasis given execu-

tion and product. These measures are derived from the literature on propositional text processing (Kintsch & van Dijk, 1978; Cirilo & Foss, 1980; Manelis, 1980; Vipond, 1980) and are used here to analyze both the structure of the commercials, and the structure of the free recall protocols that serve as dependent measures. The following section elaborates the measures, and briefly refers to their theoretical justification. Details of the analysis are available elsewhere (Kintsch & van Dijk, 1978; van Dijk, 1983, Turner & Greene, 1979; Thorson & Snyder, 1984).

When people listen to spoken language, they process it at two levels. The first is idea by idea, a detailed level involving what are called micropropositions. The second is by gist, that is, by the main or summary ideas, a level involving what are called macropropositions. Identification of micro- and macropropositions has developed into a objectively codified system that can be learned in a fairly short period of time and applied reliably and consistently by coders (Turner & Greene, 1979).

When applied to television commercials, micropropositions are organized into sentence-like clusters (Thorson & Snyder, 1984), and macropropositions are classified as being about product attribute information, commercial execution (what happens in the commercial), and as containing brand name references. Propositional analysis is applied to the scripts of commercials, but it can also be applied to what viewers recall about commercials. This aids considerably the ability to detail the information viewers remember. Using those propositional variables that have been shown most highly predictive of consumer memory for ads (Thorson, 1983; Thorson & Snyder, 1984) the present study coded seven measures on the scripts, and five measures on the viewer protocols. The selected variables are shown in Table 1.

Insert Table 1 about here

Measures of Logical Integration

Advertisers and creatives have long suggested that integration of executional elements with brand and brand characteristics is critically important to success in communicating a commercial message (Wright, et al., 1982). There have been some experimental attempts to measure such integration, most notably the work of Leavitt (1958) at the Creative Research Workshop in Leo Burnett. Building on this research tradition, the integration variables chosen and measured in the present study are closely patterned after Leavitt's ideas, but are somewhat more general in nature.

The elements involved in the integration measures include product category, claims, executional statements, and visual scenes. A judgment of integration between product and scene (PROD-SC) was made by asking if the product category could be logically associated with the scene being presented. Advertising bath oil with a model in a bathtub was considered integrated. Talking about bath oil while someone skydived was not considered integrated.

Integration between product and claim (PROD-CL) was determined by coding whether or not the claims came from some inherent aspect of the product category or whether were they arbitrary (e.g., Preston, 1968; 1982). "British Sterling will make him a legend in his own time" was not considered integrated. "Musk will make him smell wonderful" was.

Integration of scene and claim (SC-CL) was designed to gauge the extent to which claims about the product were visually demonstrated or reinforced. A pic-

ture of a sleek car with a glamorous model stroking the hood while a voice-over talked about the car's maneuverability in poor driving conditions was considered low in integration. The claim that a coffee "tastes good like it should" presented with two people enjoying a cup of coffee was considered high in SC-CL integration.

Integration of scene and executional statements (SC-EX) was defined in terms of whether verbal statements visually demonstrated or reinforced accompanying visuals. Explanation that the consumer add two eggs and a cup of water to a cake mix while a model did so was considered high in SC-EX.

The fifth and final measure of integration hinges on research in cognitive psychology (e.g., Bransford & Johnson, 1972; Mayer, 1979) and in advertising (e.g., Leavitt, 1968) that suggest memory strength is enhanced when viewers are provided with early information about the content of a message. This fact suggests that counting the seconds elapsed in a commercial before judges can identify what product is being advertised would provide at least a rough index of how soon a "frame of reference" is created. If a commercial is vague about its product or waits until late in the message to specify either the actual brand or even the product category, it may be more difficult for the viewer to encode and later retrieve the information that was presented. For the present set of commercials two judges determined the elapsed time (to the nearest second) before they recognized the product advertised. This measure (FRAME) was then inversely related to the speed of establishing the category into which the message should be stored.

Measures of Affect in Commercials

Many recent studies in advertising have examined the effect of affective or emotional stimuli in advertising (Batra, 1977; Ison, Mwans, Patrick, & Nowicki, 1982; Mitchell, & Olson, 1981; Moore & Hutchinson, 1983; Stout & Leckenby, 1984). These studies have employed various definitions of affect, and indeed, it may be that as Preston & Bowen (1971) point out, affect takes on "different meanings at different times." Since the present study is concerned with structure within commercials rather than the structure of responses in viewers, it selected from the related research four measures of affect.

The first two variables involved dichotomous indication for each scene in the commercial sample, the occurrence of affective language in product claims (CL w/AFF) and executional statements (EXHA/AFF). Indications of affect in language articulating product claims and executional statements included the use of exaggeration or hyperbole, reference to physical sensations (Taylor & Wood, 1983), use of similies and metaphors based on physical sensation or emotions (Golden & Johnson, 1983), and direct references to emotion.

The third affective variable indexed for each commercial the percent of scenes that contained any emotional stimulus from the following categories: use of soft-focus camera techniques, slow motion, portrayal of emotions by characters, close-ups of facial expression of emotion, presentation of relationships or situations that are culturally associated with emotion (e.g., weddings, or birthdays,) and singing and dancing or fast-paced, fun-filled activities. This variable was defined so as to capture the amount of time spent in the commercial generating emotional visual images.

A fourth class of affective variable was based on the long-standing distinction between rational and emotional executions (Ruechelle, 1958; Bauer & Cox,

1963; Preston, 1968; Preston & Bowen, 1971). Although we expected the other variables to be highly correlated with the degree to which a commercial used a rational or emotional approach it appeared to be an important validity check to have subjects classify each of the commercials specifically along this dimension. The result was a 100-point ThinkFeel Scale, where 100 was the most rational execution, and 0 the most emotional.

Visual Content. While several variables already emphasized visual content, two additional visual variables were deemed crucial. On the basis of advertisers' intuitions about getting the product package in front of the viewer and keeping it there, a variable defined by the number of seconds the package image was on the screen (PCKAGE) was used.

A second visual variable was based on some basic literature on the processing of television information. Watt & Welch (1983) have shown that the number of scenes per unit of time affects the difficulty of understanding and remembering televised material. In the present study, therefore, SCENES was defined as a simple count of the number of scenes (defined by the occurrence of edits) in each commercial.

Response Measures

Given the importance of free recall in the literature of cognitive psychology and advertising, the main set of response measures were defined in free recall protocols. However, rather than using the rather gross measure of whether a commercial was recalled or not, the language structure variables elaborated above were used to quantify how much and what information subjects were recalling. These variables are listed in Table 1. In addition, given a recent renewal of interest in recognition, (Krugman, 1977; Singh & Rothschild, 1983;

Bagozzi & Silk, 1983; Leigh, 1984), recognition of product category, brand name, product attributes, and executional details were also examined. Finally, subjects were asked to list their favorite six commercials from those they had watched, and this measure was used as an indicator of liking or preference (PREF).

General Hypotheses

Viewing the stimulus and response measures broadly, there appeared to be three possible patterns of correlation. One pattern would emerge based on the assumption that viewers engage in distinct types of processing: verbal, visual, and affective. In this case the variables carrying verbally-based information (e.g., Language Structure variables) would be correlated with each other and with their counterparts in the memory-measures. The Affect independent variables, including the ThinkFeel Scale, would be associated with each other and with both memory and viewer preference. The Visual Content measures (PCKAGE and SCENES) would be associated with brand name and package recognition. This pattern of correlations would lend credence to the idea that the processing of commercials naturally divides into verbal, visual, and feeling forms, and that each of these determine corresponding aspects of viewer response.

A competing hypothesis is based on the notion that the processing of commercials is divided according to semantic content in the commercial: 1) product, 2) product attributes or claims, 3) brand name, and 4) execution, regardless of whether that information is presented visually, verbally, or affectively. This hypothesis predicts correlational patterns occurring consistently within the four categories of content listed above. For example, commercial structure measures related to product attributes would all be correlated with each other,

whether they were Language Structure, Affective, Integrative, or Visual Content measures, and these measures would be correlated with all response measures related to product attributes.

Of course a third, and more conservative approach to the problem would suggest that some factors might be defined wholly in terms of type of processing required, some factors wholly in terms of semantic category, and that others would be combination variables. This alternative is intuitively appealing since commercials are complex structures that combine processing channels and semantic content in various ways.

While some advertising practitioners would argue that the determinant of a commercial's memorial and affective impact is the result of a magical synthesis of its creative elements (e.g., Della Femina, 1970; Ogilvy, 1963, Schwartz, 1974), research in cognitive psychology, marketing, mass communication effects, and consumer behavior argues for the analytic approach, particularly for memory. For example, recall and recognition are known to be predictable from language structure in texts (e.g., Kintsch, 1974, Vipond, 1981) as well as in films (e.g. Baggett, 1979), and commercials (e.g., Thorson, 1983). On the other hand, there is less evidence that preferences are predictable from analysis of commercial structure, and therefore prediction of Preference may prove more elusive.

Whether recall, recognition, and preference are predicted by similar or different groupings of independent variables will depend, of course, on the interrelationships in the zero-order correlations, as well as the correlations among the independent variables themselves.

Certainly the occurrence of significant patterns of correlation among the 18 stimulus variables themselves should serve as a warning to those who have

assumed that it is possible to test simple unidimensional measures of commercial variation against each other. Experimental examination of such variables as complexity, emotionality, executional style, use of humor as well as many other dimensions depend upon the assumption that there is not concomitant variation among the unmanipulated dimensions. The pattern of correlation in the variables tested here provides an initial test of that assumption.

Method

Overview

The data reported here were collected in two different settings using separate subject pools. Each manipulation, however, involved the same set of 18 commercials, chosen to reflect variation in products advertised, executional style, and emphasis of information or emotion.

Selection of the Commercials. The 18 commercials in this study had been used previously (Rothschild, Thorson, Reeves, Goldstein, Hirsch, 1983; Choi & Thorson, 1983). They were selected by having student subjects (other than those tested in subsequent manipulations) rank 200 commercials on a scale (THINKFEEL) ranging from 0 (purely emotional), through 50 (a balance of emotional and rational) to 100 (purely rational). Six commercials with means nearest 0, 50, and 100, and with small standard deviations were then chosen as the stimulus set. This selection procedure was designed to guarantee variance along an emotional-rational dimension, as well as to reflect the variation seen in real-life commercials. All of the commercials at the emotional end of the continuum reflected only positive emotions. None of the commercials had been shown in the test area.

Coding the Commercials

Language structure. Both the commercial scripts and the viewer free recall protocols were subjected to a propositional analysis, guided by the coding manual of Turner & Greene (1979). First, each script or protocol was analyzed into its component micropropositions. The micropropositions were then organized into clusters. Executional and product characteristic macropropositions were identified and located in each script. Corresponding executional macropropositions were identified and located in the microstructure of the viewer protocols. Finally, summarized values for each of the script and recall variables were calculated for each commercial and its associated set of protocols. One coder scored all of the protocols and scripts.

Visual Measures. Two judges viewed the 18 commercials and initially determined the point at which the product being advertised became apparent (FRAME) and the length of time the package appeared on the screen (PCKAGE).

A second viewing was used to determine the number and length (in seconds) of scenes (SCENES). Each scene was given a value that represented its proportion of the whole message. For example, a four-second scene in a 30 second commercial would have a value of .13. This value was used in weighting the other affect and integration measures.

Integration and Affective Measures. Additional viewing of each message allowed coders to make presence or absence judgments for each scene of the following variables: PROD-SC, PROD-CL, SC-EX, SC-CL, CL w/AFF, EXMA w/AFF, and SC w/VIS AFF. These values were then weighted by the proportion of the commercial that the scene represented as described above. Each variable, then, would have a value from 0 to 1.0.

The average intercoder reliability across the ten visual, integration, and affective variables coded was 86.5%.

Recall and Recognition Procedures. The subjects in this manipulation were 64 undergraduate students (21 males) enrolled in an introductory advertising course and given course credit for their participation. They were tested at the beginning of the semester, and were recruited by a "mass communication researcher who was interested in humor in situation comedies." The students were given course credits for their participation.

Tested in groups of 10 or fewer, the students viewed the 18 commercials embedded in two 30-minute situation comedies (Phyllis and The Brady Bunch). The students viewed the commercials in one of three counterbalanced orders.

After viewing, the subjects were informed that the real goal of the study was to test their memory for commercials. Immediately thereafter, the students filled out a Recall instrument that contained 18 sets of blanks for information about product, brand name, claim, and execution. The instructions asked the subjects to recall as many commercials as possible and as many items of information about each commercial as possible.

After recalling, the students filled out the Recognition instrument. It contained, for each commercial, five-alternative recognition tasks for product, brand, claim, and a drawing of the package. The four categories for each ad appeared in the fixed order of product, brand, claim, and package, but the orders of the commercials were randomized across respondents.

Preference Measures. The subjects in this portion of the study were 60 undergraduate students (32 males) enrolled in the same introductory advertising course as the memory group, but during a different semester. They were also

given course credit for their participation. The students viewed the 18 commercials in one of three sessions, with the order of presentation varied for each administration. The commercials were not embedded in programming. Immediately after viewing, the students filled out the Preference instrument. In that instrument, the students were asked to select six of the 18 commercials that they would prefer to have included in an upcoming (though fictitious) situation where they would have to watch the commercials repeatedly. For each commercial it was determined what percentage of students had included it in his/her list of a preferred six. The highest percent of subjects selecting a commercial was 87%; the lowest was 5%.

Results

Three kinds of analyses were applied to the results. First, factor analyses of the stimulus and response measures allowed evaluation of the competing hypotheses about how viewers organize information from the commercial messages. Second, zero-order correlations between stimulus and response variables allowed evaluation of the degree of patterning in relationships between the Language Structure, Integration, Visual, and Affect measures, and memory and preference. Finally, stepwise linear regressions allowed determination of how well the response measures could be predicted from the stimulus measures.

Factor Analyses of the Script and Performance Variables

Tables 2 and 3 show the results of factor analyses of the script and performance variables. Both analyses were via a principal components solution with unity in the diagonal, Varimax orthogonal rotations, and with eigen values of 1.00 used as the criterion for retaining factors.

For the stimulus variables, five factors accounted for 80% of the variance, while for the performance variables, four factors accounted for 79% of the

variance. Interestingly, the hypothesis that semantic content variables (product, product attribute, brand & execution) would determine the correlation patterns found more support in the factor analyses than did the type-of-processing hypothesis. As can be seen in the factor names supplied in Tables 2 and 3, categories of content dominate. There is no indication of clustering among the measures contained in the four stimulus dimensions, language, integration, affect & visual, except for the Integration factor in Table 2. Of course with a larger sample of commercials and the addition of other stimulus and response variables, the structure of these factors might change, but it seems unlikely that the strong tendency toward organization by semantic content categories would be affected to a significant degree.

Insert Tables 2 and 3 about here

The factor analysis of the response measures (Table 3) is equally straightforward. The first factor includes most of the measures of output in the free recall protocols of the viewers. The second factor relates to knowing the brand name, since that would lead to both brand name recognition and package recognition. Factor 3 indicates a relationship between recalling the name of the product and failing to recognize the claims made about it. While this result could be explained by commercials either emphasizing name to the exclusion of details about the product, or vice versa, the insignificant though positive correlation between the two stimulus measures (.29) argues against it. The final factor consists of Preference.

Correlations Between Stimulus and Response Measures

Table 4 shows the zero-order correlations between the stimulus and response measures. As can be seen, the Language Structure variables did relate significantly to the memory measures, particularly to how many ideas the viewers generated (R-MI), how many product attributes they generated (R-PRODMA), and to product recognition (PROD REC). Language Structure (EXMA and EXSIZE) also correlated with preference. People tended to dislike commercials that had a lot of verbal information about the product.

The Integration measures were also significantly related to memory. In this case, however, specific integration measures were correlated with recall and recognition measures in a pattern that might not be intuitively expected. For example, PROD-CL and SC-PROD Integration were not significantly correlated with R-PRODMA, although the correlations approached significance. Both of these product-related integration measures were, however, correlated with PROD REC. While SC-EX Integration was correlated with R-EXMA as might be expected, it was not correlated with the percent of viewers who recalled scenes (R-ZSC). SC-PROD Integration, however, was highly correlated with R-ZSC. And, again rather surprisingly, two of the Integration measures were also related to Preference. Therefore while the Integration measures were related to memory, there were some significant variations from a simple pattern.

Insert Table 4 about here

Both SCENES and PCKAGE, measures of visual content, were related to memory, with longer PCKAGE times also negatively associated with Preference.

Surprisingly, PCKAGE and package recognition (PKG REC) were not correlated. Also, contrary to predictions, the measures of Affect were not strongly related to memory, but were highly associated with Preference.

Looking overall at the table of correlations, some generalizations about the relative strength of the four classes of stimulus variables and their relationships to the responses can be made. Recall and Preference were highly correlated with the stimulus measures. Recognition measures, except for PROD REC, were not correlated with stimulus measures. Analyzing each of the four stimulus dimensions individually, it can be seen that of the possible correlations between Language Structure and the dependent measures, 16% of the correlations with Recall measures were significant, 11% of the Recognition, and 29% of the Preference measures were significant. The Integration measures showed higher percentages of significant correlations: 57% with Recall, 25% with Recognition, and 50% with Preference. The two visual measures showed 36% significant correlations with Recall, 0% with Recognition, and 50% with Preference. Finally, Affect showed only 6% and 5% significant correlations with Recall and Recognition, respectively, but 80% with Preference. This pattern would seem to indicate that for viewer memory, integration of ideas is particularly important, with other dimensions less so. Preference, on the other hand, was related to all four dimensions of stimulus variations, although the Affect dimension was most strongly correlated with it.

Prediction of the Response Measures

The results of stepwise regressions predicting the recall and recognition measures are shown in Table 5. As would be expected from the zero-order correlations, the recall measures were better predicted than were the recognition measures (except for product recognition).

Insert Table 5 about here

Two evaluations of statistical significance were applied to the present results. One was the standard evaluation involving the F statistic. However, McIntyre, Montgomery, Srinivasan, & Weitz (1983) have shown that this criterion is not sufficiently rigorous for regressions developed with the stepwise analysis and therefore the results of applying their statistic for evaluating R^2, the Cumulative R^2 distribution, are also shown. The regression equations with R^2 marked with a + could be expected to reoccur with little change in a replication sample. This evaluation leaves the same general pattern of results unchanged except that Preference was no longer significantly predicted.

Discussion

Though the present study involved limited samples of stimulus dimensions and commercials, the method and its results have implications for research on the effects of advertising messages.

First, the stimulus variables did cluster into factors. This demonstrated that selection of commercials as exemplars on one stimulus dimension can easily bring about confounding with other dimensions. A good example would be the linkages between emotional strategies and language structure. If such correlations can be seen in a small sample of commercial dimensions, there exists a significant likelihood of finding many more linkages when more dimensions are sampled. This means, of course, that typical factorial designs used to show the effects of chosen independent variables will probably be difficult if not impossible to interpret as free from stimulus confounding.

Given the demonstrated strength of the present sample of stimulus interrelationships in commercial structure, an immediate question concerns the alternatives the researcher has to reliance on factorial designs. In the mass communication literature, Jackson & Jacobs (1983) have suggested researchers must include a number of exemplars of each category of message tested so that results can be interpreted as meaning more than that individual idiosyncratic messages have effects. While this suggestion is certainly of relevance to much of the research in which commercials are the messages, it would not solve the concomitant variation problem. To demonstrate that this is the case, consider a sample of ten emotional commercials as representing the category "emotional." Even if these commercials consistently produced a certain effect on responses (for example, being remembered or liked more than non-emotional commercials) the fact that all of the ten will simultaneously vary on other highly correlated dimensions means that attributing the differences to "emotional structure" in and of itself is inappropriate. The remedy must therefore go beyond larger stimulus samples.

An alternative approach is further studies like the present one, but which include wider sets of stimulus variables and larger samples of commercials. Such studies should lead to a taxonomy of commercial structure that would be available to researchers planning factorial designs. In this way independent manipulations of concomitant variables could sometimes be accomplished. Or when exemplars could not be found that dissassociated the variables of interest, at least this fact would be clear for the interpreter of the studies. Indeed, in the area of verbal learning the impossibility of experimental dissociation has occurred, in the case of the imagery value of words and their concreteness

(Rubin, 1980) as well as in the case of letter frequency in words and the regularity of their spelling patterns (Massaro, Jastrzembski, & Lucas, 1980). That unavoidable residual concomitant variation exist in commercial structure would not therefore be surprising.

References

Acker, D.A., and D.E. Bruzzone, "Viewer Perceptions of Prime-Time Television Advertising," Journal of Advertising Research, 21 (1981), pp. 15-23.

Baggett, Patricia, "Structually Equivalent Stories in Movie and Text and the Effect of the Medium on Recall," Journal of Verbal Learning and Verbal Behavior, 18 (1979), pp. 333-356.

Bagozzi, Richard P., and Alvin J. Silk, "Recall, Recognition, and the Measurement of Memory for Print Advertisements," Marketing Science, 2 (Spring 1983), pp. 95-134.

Bauer, R.A., and D.F. Cox, "Rational vs. Emotional Communications: A New Approach," in Television and Human Behavior, ed. by L. Arons and M. May, New York: Appleton-Century-Crofts, 1963.

Bransford, J.D., and M.K. Johnson, "Contextual Prerequisites for Understanding: Some Investigations of Comprehension and Recall," Journal of Verbal Learning and Verbal Behavior," (1972), pp. 717-726.

Brown, J, "An Analysis of Recognition and Recall and of Problems in Their Comparison," in Recall and Recognition, ed. by J. Brown, New York: Wiley, 1976.

Choi, Young, and Esther Thorson, "Memory for Factual, Emotional, and Balanced Ads Under Two Instructional Sets," in Proceedings of the 1983 Conference of the American Academy of Advertising, ed. by Alan D. Fletcher, Knoxville: University of Tennessee, 1983.

Cirilo, R.K. and D.J. Foss, "Text Structure and Reading Time for Sentences," Journal of Verbal Learning and Verbal Behavior, 19 (1980), pp. 96-109.

Della Femina, Jerry, "From Those Wonderful Folks Who Gave You Pearl Harbor, New York: Pocket Books, 1970.

Hall, J.F, "Recall Versus Recognition," Journal of Experimental Psychology: Learning, Memory and Cognition, 9 (1983) pp. 346-349.

Holbrook, M.D. and D.R. Lehman, "Form Versus Content in Predicting Starch Scores," Journal of Advertising Research, 20 (1980), pp. 53-62.

Isen, Alice M., B. Means, R. Patrick, and G. Nowicki, "Some Factors Influencing Decision-Making Strategy and Risk Taking," in Affect and Cognition, ed. by M. Clark and S. Fiske, New Jersey: Lawrence Erlbaum, 1982.

Jackson, Sally, and Scott Jacobs, "Generalizing about Messages: Suggestions for Design and Analysis of Experiments," Human Communication Research, 9 (1983), pp. 169-191.

Kintsch, Walter, "The Representation of Meaning in Memory, Hillsdale, N.J., Erlbaum, 1974.

Kintsch, Walter, "Memory and Cognition, New York: John Wiley & Sons, 1977.

Kintsch, Walter, and T.A. Van Dijk, "Toward a Model of Text Comprehension and Production," Psychological Review, 85 (1978), pp. 363-394.

Klatsky, Roberta L, "Human Memory: Structures and Processes, San Francisco: W.H. Freeman, 1980.

Krugman, Herbert E., "Memory Without Recall, Exposure Without Perception," Journal of Advertising Research, (August 1977), pp. 7-12.

Leavitt, Clark, "Response Structure: A Determinant of Recall," Journal of Advertising Research, 8 (1968), pp. 3-6.

Leigh, James H., "Recall and Recognition Performance for Umbrella Print Advertisements," Journal of Advertising, 13 (1984), pp. 5-18.

Lutz, R.J. "An Experimental Investigation of Causal Relations Among Cognitions, Affect, and Behavioral Intention," Journal of Consumer Research, 3, (1977), pp. 197-208.

Manelis, L., "Determinants of Processing for a Propositional Structure," Memory and Cognition," 8 (1980), pp. 49-57.

Massaro, Dominic, James E. Jastrzembski, and Peter Lucas, "Frequency, Orthographic Regularity, and Lexical Status in Letter and Word Perception," Technical Report No. 550, Wisconsin Research and Development Center for Individualized Schooling, 1980.

Mayer, F.E, "Twenty Years of Research on Advance Organizers: Assimilation Theory Is Still the Best Predictor of Results," Instructional Science, 8 (1979), pp. 133-167.

McIntyre, S.H., D.B. Montgomery, V. Srinivasan, and B.A. Weitz, "Evaluating the Statistical Significance of Models Developed by Stepwise Regression," Journal of Marketing Research, 20 (1983), pp. 1-11.

Mitchell, Andrew A., and Jerry C. Olson, "Are Product Attribute Beliefs the Only Mediator of Advertising Effects on Brand Attitudes?" Journal of Marketing Research, 18 (August 1981), pp. 318-332.

Mizerski, R.W., and R.B. Settle, "The Influence of Social Character on Preference for Social Versus Objective Information in Advertising," Journal of Marketing Research, (November 1979), pp. 552-558.

Moore, D.L., and J.W. Hutchinson, "The Effects of Ad Affect on Advertising Effectiveness," in Advances In Consumer Research, Vol X, ed. by R.P. Bagozzi and A.M. Tybout.

Ogilvy, D., "Confessions of an Advertising Man, N.Y.: Ballantine Books, 1963.

Preston, Ivan L., "Relationships Among Emotional, Intellectual, and Rational Appeals in Advertising," Speech Monographs, 35 (1968), pp. 504-511.

Preston, Ivan L, "The Association Model of the Advertising Communication Process," Journal of Advertising, 11 (1982), pp. 3-15.

Preston Ivan, and Bowen, L., "Perceiving Advertisements as Emotional, Rational, and Irrational," Journalism Quarterly, 48 (1971), pp. 73-84.

Reid, L.N., H.J. Rotfeld, and G.B. Wilcox, "The Response of White Consumers to Integrated Advertising: The Socially Consumed Product," in Proceedings of the 1981 American Academy of Advertising, ed. by H. Keith Hunt, (1981), pp. 83-86.

Rossiter, John, "Predicting Starch Scores," Journal of Advertising Research, 21 (1981), pp. 63-68.

Rossiter, John R., and Larry Percy, "Attitude Change Through Visual Imagery in Advertising," Journal of Advertising, 9 (1980), pp. 10-16.

Rothschild, Michael, Esther Thorson, Judy Hirsch, Robert Goldstein, and Byron Reeves, "EEG Activity and the Processing of Television Commercials." University of Wisconsin-Madison, Graduate School of Business, 1983.

Rubin, David C., "31 Properties of 125 Words: A Unit Analysis of Verbal Behavior," Journal of Verbal Learning and Verbal Behavior, 19 (1980), pp. 736-755.

Ruechelle, R.C, "An Experimental Study of Audience Recognition of Emotional and Intellectual Appeals in Persuasion," Speech Monographs, 25 (1958), pp. 49-58.

Schlinger, M.J. " A profile of responses to commercials." Journal of Advertising Research, 19 (1979), pp. 37-48.

Schwartz, Tony, The Responsive Chord. Garden City, N.Y.: Anchor Books, 1974.

Singh, S.N., and Michael L. Rothschild, "Recognition as a Measure of Learning from Television Commercials," Journal of Marketing Research, 20 (1983) pp. 29-48.

Stout, Patricia, and John D. Leckenby, "The Rediscovery of Emotional Response in Copy Research," in Proceedings of the 1984 Convention of the American Academy of Advertising, ed. by Donald R. Glover Lincoln, Nebraska: D.R. Glover, School of Journalism, University of Nebraska-Lincoln.

Taylor, S.E., and Wood, J.V. (1983). "The Vividness Effect: Making a Mountain Out of a Molehill?" In Advances in Consumer Research, Vol X, Ann Arbor, Michigan: Association for Consumer Research, ed. by R.P. Bagozzi & M. Tybout.

Thorson, Esther, "Propositional Determinants of Memory for Television Commercials," in Current Issues and Research in Advertising, ed. by C.R. Martin & J.H. Leigh, Ann Arbor: University of Michigan Press, 1983.

Thorson, Esther, and Michael L. Rothschild, "Recognition and Recall of Commercials: Prediction from a Text Comprehension Analysis of Commercial Scripts," in Advertising and Consumer Psychology, ed. by L. Percy and A.G. Woodside, Lexington, MA: Lexington Books, 1983.

Thorson, Esther, and Rita Snyder, "Viewer Recall of Television Commercials: Prediction from the Propositional Structure of Commercial Scripts." Journal of Marketing Research, 21 (1984), pp. 127-36.

Turner, A., and E. Greene, "The Construction of a Propositional Text Base," JSAS Catalog of Selected Documents in Psychology, 1979.

van Dijk, T.A, "Discourse Analysis: Its Development and Application to the Structure of News," Journal of Communication, 33 (1983), pp. 20-43.

Vipond, D, "Micro- and Macroprocesses in Text Comprehension," Journal of Verbal Learning and Verbal Behavior, 19 (1980), pp. 276-296.

Watt, J.H, and A.J. Welch, "Effects of Static and Dynamic Complexity on Children's Attention and Recall of Televised Instruction," in Children's Understanding of Television, ed. by W.J. Bryant & D.R. Anderson, Hillsdale, N.J.: Erlbaum, 1983.

Wells, William D., Clark Leavitt, and Maureen McConville, "A Reaction Profile for TV Commercials," Journal of Advertising Research, 11 (1971), pp. 11-17.

Wright, John S., Willis L. Winter, Jr., and Sherilyn K. Zeigler, Advertising, New York: McGraw-Hill, 1982.

Table 1

Language Structure Variables Defined in Commercials and Viewer Recall

Commercial Structure Measures	Viewer Recall Measures
1) Number of micropropositions (MI)	1) Number of micropropositions in recall (R-MI)
2) Number of macropropositions (MAs) related to product attributes (PRODMA)	2) Number of Macropropositions (MA's) related to product attributes (R-PRODMA)
3) Number of MA's related to what happens in the commercial (EXMA)	3) Number of recalled MA's related to what happens in the commercial (R-EXMA)
4) Number of clusters (CLUS)	4) Number of clusters in recall (R-CLUS)
5) Size (in number of MIs) of the clusters containing PRODMAs (PROD SIZE)	5) Percent of viewers recalling Brand (R-%BR), Claim (R-%CL), and Scenes (R-%SC)
6) Size (in number of MIs) of the clusters containing EXMAs (EX SIZE)	
7) Brand name MA's (NAME)	

Table 2

Factor Analysis* of Commercial Attributes
(Sorted Rotated Factor Loadings)

Commercial Attributes	Factors				
	Information	Claim	Execution	Integration	Brand Name
THINKFEEL SCALE	.92	.00	.00	.00	.00
PROD SIZE	-.90	-.33	.00	.00	.00
MI	.89	.00	.00	.00	.00
SC w/VIS AFF	.86	.00	.00	.00	.00
PRODMA	.78	.00	.00	.00	.33
MI SIZE	.56	.00	-.38	.00	.00
PROD-CL	.00	.79	-.32	.00	.00
SC-CL	.00	.77	.00	.42	.00
SCAMES	.00	-.73	.00	.00	.00
PCEAGE	.43	.72	.00	.00	.43
CL W/AFF	-.34	.52	.00	.00	.00
EXMA	.00	.00	.89	.00	.00
CLUS	.00	.00	.74	.00	.50
EXMA W/AFF	.00	-.61	.67	.00	.00
SC-EXMA	.00	.00	.65	.40	-.31
PROD-SC	.00	.00	.00	.92	.00
FRAME	-.28	-.35	.00	-.71	.00
NAME	.00	.00	.00	.00	.87
% Variance accounted for	.35	.19	.11	.09	.06

*Factors account for 80% of the variance.

Table 3

Factor Analysis* of Recall, Recognition, and Ad Preference Measures
(Sorted Rotated Factor Loadings)

Performance Measures	Factors			
	Recall	Product Name Recognition	Brand Name and Claim	Liking
R-MI	.93	.00	.00	.00
R-X CL	.84	.00	.00	.00
R-X SC	.83	.00	.00	.00
R-PRODNA	.78	.00	-.37	.00
R-BRNA	.73	.30	.00	.00
PROD REC	.66	.00	.25	-.45
PKG REC	.00	.95	.00	.00
BR REC	.00	.89	.00	.00
R-X BR	.00	.00	.89	.00
CL REC	.34	.00	-.63	.00
PREF	.00	.00	.00	.93
% Variance accounted for	.37	.17	.15	.10

*Factors account for 79% of the variance.

Table 4

Intercorrelations of Commercial Attributes And Recall
Recognition, and Ad Preference

Response Measures	Language Structure							Integration					Visuals		Affect			
	MI	CLUS	EXMA	PCMA	NAME	PROD SIZE	EX SIZE	FRAME	PROD-CL	SC-CL	SC-EXMA	SC-PROD	PCKAGE	SCENES	CL w/AFF	EXMA w/AFF	SC/w VIS AFF	THINK FEEL SCALE
R-MI	.30	.01	-.22	.43*	.50*	-.53*	-.08	-.47*	.49*	.71*	.24	.45*	.42*	-.36	-.19	.36	-.33	.39
R-CLUS	-.09	-.27	-.37	.18	.17	-.28	-.17	-.50*	.50*	.68*	.31	.65*	.21	-.45*	-.08	-.37	-.06	.18
R-PRODMA	.57*	.31	-.15	.56*	.49*	-.68*	.13	-.53*	.36	.41*	.09	.39	.53*	.17	-.16	-.28	-.48*	.58*
R-EXMA	.04	-.26	.14	.12	.10	-.32	.08	-.28	.40*	.60*	.45*	.40*	.20	-.57*	-.06	-.32	-.18	.21
R-% BR	-.65*	-.02	-.18	-.26	-.14	.24	-.24	-.08	.27	.41*	.22	.31	.08	-.55*	-.11	-.02	.33	-.36
R-% CL	.30	.17	-.13	.39	.35	-.34	-.09	-.40*	.18	.36	.13	.50*	.23	-.14	-.13	-.14	-.20	.37
R-% SC	-.21	.10	-.01	-.16	.37	-.00	-.22	-.3	.32	.57*	.53*	.76*	.13	-.27	.05	-.09	.15	-.12
PROD REC	.23	-.09	-.27	.40*	.05	-.49*	-.45*	-.62*	.63*	.54*	.21	.40*	.34	-.36	-.12	-.21	-.39	.34
BR REC	-.13	-.29	-.27	.15	.21	-.16	-.03	-.06	-.02	.09	-.07	-.06	-.20	-.22	-.36	-.11	-.05	.07
CL REC	.34	.07	-.02	.13	.21	-.23	.20	-.08	.38	.26	-.0	-.05	.36	-.26	.14	-.34	-.22	.23
PKG REC	-.04	-.19	-.02	.09	.17	-.08	-.06	.20	-.25	.01	-.01	-.36	.22	-.01	-.46*	-.09	-.08	-.04
PREF	-.33	.19	.52*	-.33	-.17	.37	-.47*	-.03	-.42*	-.15	.52*	-.05	-.51*	.19	-.08	.50*	.33*	-.42*

*$p<.10$

Table 5

Commercial Attributes and Standardized Beta Coefficients in Stepwise Regressions Predicting Recall, Recognition, and Ad Preference

Response Measures	Stimulus Variables				Statistics			
	Language Structure	Affect	Integration	Visuals	R^2	R^2adj	F	df
R-MI	PROD SIZE (-.31)	I CL W/AFFECT (-.31)	SC-CL (.72)	—	.73	.68+	12.92**	3,14
R-CLUS	—	—	SC-CL (.49) PROD-SC (.42)	—	.61	.56+	11.67**	2,15
R-PRODMA	CLUS (.35) PROD SIZE (-.68)	—	PROD-SC (.43)	—	.73	.68+	12.72**	3,14
R-EXMA	—	—	SC-CL (.60)	—	.36	.32	9.05**	1,16
R-I BR	MI (-.88)	I CL W/AFFECT (-.41)	—	PCKAGE (.43) SCENES (-.33)	.83	.77+	15.63**	4,13
R-I CL	PRODMA (.40)	—	PROD-SC (.50)	—	.41	.33	5.18*	2,15
R-I SC	—	—	SC-EX (.33) PROD-SC (.66)	—	.67	.63+	15.53**	2,15
PROD REC	PRODMA (.66)	EXMA W/AFFECT (.60)	PROD-CL (1.22) SC-EX (.34)	PCKAGE (-.48)	.82	.75+	10.98**	5,12
BR REC	—	—	—	—	—	—	—	—
CL REC	—	—	—	—	—	—	—	—
PKG REC	—	CL W/AFFECT (-.46)	—	—	.21	.16	4.23 n.s.	1,16
PREF	EXMA (.52)	—	—	—	.27	.23	5.06*	1,16

*p < .05 **p < .01
+ Significant under the Cumulative R^2 Distribution (10, 20, p=.05)